Then we analyzed Gal-1 expression in activated peripheral T lymphocytes. In physiological T-cells Gal-1 was expressed upon activation, remained intracellularly and as a consequence of Gal-1 expression, activated T-cells responded with apoptosis to extracellular Gal-1. T-cells were also isolated from patients suffering from an autoimmune disease, systemic lupus erythematosus (SLE). We found that SLE T-cells failed to express Gal-1 upon activation and accordingly, these cells were more resistant to apoptosis induced by exogenous Gal-1.

Our results show that Gal-1 transgenic T-cell line, JGal resembling activated T-cells and physiological but not SLE activated T-cells express but do not secrete galectin-1. T-cells producing intracellular Gal-1 become more sensitive to apoptosis triggered by extracellular Gal-1. These data strongly indicate that intracellular Gal-1 in activated T-cells contribute to the fine regulation of the termination of immune response and additionally, the failure of Gal-1 expression in autoimmune T-cells may regulate the disease onset..

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Obesity research regarding lifestyle and socio-economic background among people of different age groups

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Obesity defined as excessive or abnormal fat accumulation has reached epidemic levels in developed and developing countries too. The prevalence of obesity has risen considerably over the past three decades, and this trend continues nowadays. According to the Word Health Organization approximately 1.5 billion adults were overweight globally in 2008, more than 200 million men and nearly 300 million women of which were obese. Furthermore, this problem does not only affect adults, but also children and adolescents (WHO 2010). Increased risk of a number of life threatening diseases is linked to obesity, such as cardiovascular diseases, diabetes mellitus, musculoskeletal disorders, different forms of cancers. In addition to health problems, obesity is also a serious financial burden both for the society and for the obese individuals (Bray 2004, Thompson et al. 1999).

The fundamental cause of obesity and overweight is an energy imbalance between energy intake and energy expenditure. Although the genetic background of obesity development is indisputable, and research advances have highlighted the importance of molecular genetic factors in determining individual susceptibility to obesity, it can not explain the worldwide obesity epidemic. There is supporting evidence that different environmental factors, lifestyle preferences (global shift in diet towards overconsumption, and a trend towards decreased physical activity), cultural and socio-economic environment seem to play major roles in the rising prevalence of obesity (Stein and Colditz 2004). The purpose of our study was to examine the relationship between the nutritional status and certain socio-economic and lifestyle factors among people of different age groups.

596 high school students (aged 14-18) and 1205 university students (aged 18-25) participated in the examination. To estimate overweight, obesity and fat distribution, we determined body mass index (BMI), waist circumference and wais-to-hip ration (WHR). We used questionnaires to gather the required information about the participants' lifestyle and socio-economic background.

Some of our key findings were: the prevalence of obesity was 14,3% among the high school students (15,36% of boys and 12,41% of girls). 22% of university students were overweight (males: 33,1%; females: 15,5%), and 5,2% of them were obese (males: 7,7%; females: 3,8%). The result showed that parental education level was related to the students overweight (lower level associated with higher BMI). The prevalence of overweight and obesity decreased by number of daily meals, and the normal weight students showed more frequently eating sweets than the overweight group. The majority of examined high school students had weak physical abilities, and the Hungarofit scores were negatively associated with BMI. The prevalence of overweight and obesity in adolescents living in a large city (Szeged) was significant fewer compared to teenagers living in small town area (Jánoshalma), and the former spent significantly less time in front of the TV and computer in their free time.

Additionally, to examine the benefits of regular exercise, 172 volunteers were recruited and enrolled in a 4-month physical activity intervention programme. The decrease in BMI and percent body fat loss was significant.

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